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Voices From the Ground Up: Research and Studying as Mutually Informative Activities

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Abstract

A mid-sized university library system conducted a large scale mixed-methods research project intended to better understand the student library experience and ways to enhance it. One aspect of the project included a detailed and iterative analysis of interview data that yielded emerging patterns of behavior related to research and study activities. Using a grounded theory approach, a qualitative methodology that uses empirical data to generate theory, the researchers developed a construct that some research and study activities are mutually informative and are likely manifested through the process of transfer of learning. The article describes the approach used to develop the construct in hopes that it will provide a deeper understanding of the relationship between research and studying phenomenon and how academic libraries contribute to the greater academic landscape in ways not previously recognized.

Highlights

- Iterative reviews of coded data indicated some research and study behaviors overlapped and were difficult to differentiate.
- Interchangeable skills used for both research and studying included evaluation of sources, information search strategies, and multitasking using multiple devices to find use, and synthesize information.
- Students used knowledge learned from information literacy instruction and librarian interactions to inform them on how to study and learn academic content and vice versa.
- Ethnography and grounded theory qualitative methodologies are compatible and effective for furthering library science research.

Introduction

What obstacles do students face when researching and studying? What is the perceived role of the librarian? Student research habits and expectations continually change and past practices cannot predict future performance, complicating the design of library spaces and the provision of research support. A number of academic libraries have conducted large-scale studies using ethnographic methods, an approach that stems from anthropology, in order to investigate student and faculty research behaviors. Ethnographic studies conducted by libraries are often exploratory qualitative investigations into how patrons use libraries and their resources, ranging recently from faculty research and publication practices to the application of ethnographic methods regarding patron use of library catalogs (Zoellner, Hines, Keenan, & Samson, 2015; Wilson, 2015). As a longitudinal and labor-intensive approach to research, ethnographic methods demand a significant contribution of time and resources but have the potential to reveal “insights that are not ‘visible’ via conventional methods” (Dent, 2011, p. 7).

Frequently, a goal of ethnographic research is grounded theory (Vogt, 2005, p. 137). Grounded theory, a tenet of the social sciences, was described by one of its founders, Barney Glaser, as a

systematic approach to developing theory about a phenomenon that is "grounded" in empirical data (1992). Whereas, the goal of ethnography is to describe a pattern of cultural belief, values and attitudes in a selected population, grounded theory aims to construct a theoretical framework to explain a phenomenon on which little is known. When used in conjunction, ethnography and grounded theory are synergistic and highly compatible, as ethnographic studies can provide the detailed description that is very useful data for grounded theory analysis and construct development (Glaser and Strauss 1967).

[University Name] is a private institution serving approximately 18,000 students at its two primary campuses located in [City, State] and [City, State]. The [University Name] Libraries conducted a multi-year research project beginning in 2012 to better understand undergraduate and graduate student library use at its urban and suburban campuses. As part of the larger project, researchers used ethnography as a way to describe a "culture"—in this case, the culture of [University Name] students within the academic library setting—and grounded theory to explain student research and study activities. Using an inductive framework, the resulting theoretical construct posits that student research practices are not compartmentalized behaviors, but situated within the larger constellation of academic practices. Through transfer of learning, students use skills and knowledge learned from information literacy instruction and librarian interactions to study and learn academic course content. From these insights, the expectation is that libraries can design learning environments and research services that are more responsive to student needs, as well as, account for the library's role within the greater academic learning community. A literature review will provide a useful frame for this study's foundations, design, and findings.

Literature Review

Ethnography is a qualitative research approach used to understand the behaviors, values, or needs of a culture. Although different forms of ethnography exist, "discovery is a key concept in ethnographic research, one that sets it apart from other methods of inquiry" (Goodman, 2011). Comprehensive ethnography does more than report on what is observed but interprets the context of the observations by unraveling the "webs of meaning" (Geertz, 1973). This approach to ethnography is referred to as a "thick" or detailed description of human behavior (Ryle, 2009). An analysis of 81 studies in the library and information science literature that adopted ethnographic approaches identified five main categories of data collection methods: observation, interviews, fieldwork, focus groups, and cultural probes (Khoo, Rozaklis, & Hall, 2012). Carlsson, Hanell, & Lindh (2013) considered ethnography in three ongoing studies, finding the method useful in uncovering the complexities of information practices.

Ethnographic research requires a significant investment of time, budget, and personnel. When performed properly, the gains can solidly outweigh the costs. Ethnographic research has been used intermittently to collect data on library users' experiences for decades, but analyses of the literature indicate a significant increase in library ethnography over the last ten years (Ramsden, 2016; Khoo et al., 2012). University of Rochester's Studying Students project (Foster & Gibbons, 2007) propelled ethnography to the forefront of academic library research, using an intensive mixed-methods approach to understanding what undergraduate students do to write research papers.

A second landmark study, The ERIAL Project: Ethnographic Research in Illinois Academic Libraries, used a mixed-methods design implemented across five Illinois institutions (Duke & Asher, 2012). The project findings uncovered what students do when they are assigned a research project. Additional research modeled after the University of Rochester project are Fresno State's thorough examination of student research habits (Delcore et al., 2009) and Rutgers University Libraries' study of how undergraduates, graduates and faculty use resources, in a primary effort to redesign the library's website (Au, Boyle, & MacDonald, 2009). Regardless of the research goal and the population investigated, in recent years ethnographic studies have become a steadfast approach to the planning and development of library infrastructure and space (Dominguez, 2016; Khoo, Rozaklis, Hall, & Kusunoki, 2016; Kinsley et al., 2015; May & Swabey, 2015; Hobbs & Klare, 2010; Applegate, 2009; Bryant, Matthews, & Walton, 2009). Other areas of the library receiving ethnographic inquiries include the provision of services (Allan, 2016), curriculum design (Pashia & Critten, 2015), and technology and website usability (Khoo et al., 2016; Kim Wu & Lanclos, 2011).

Grounded theory, considered by many as a companion research method to ethnography, was introduced in the 1960s by American sociologists Barney Glaser and Anselm Strauss. Researchers use a grounded theory approach to systematically collect data through "extensive direct observation and inductive methods in a natural or non-experimental setting" (Vogt, 2005, p. 137) and to iteratively analyze the data for repeating themes. These emerging themes become building blocks for developing a theoretical "construct." Crocker and Algina (1986) describe constructs as "hypothetical concepts--products of informed scientific imagination of social scientists who attempt to develop theories for explaining human behavior. The existence of such constructs can never be absolutely confirmed. Thus the degree to which any psychological construct characterizes an individual can only be inferred from observations of his or her behavior" (p.4).

Grounded theory has been limitedly applied to information and library science research. Mellon (1986) conducted one of the first grounded theory studies within the academic library setting in an effort to explain student library anxiety. For two years, Mellon analyzed students' written narratives regarding their emotions toward using the library for research. Emerging themes, including feelings of incompetence and shame when asking for library assistance, led Mellon to theorize that in general students had feelings of anxiety when using the library for research. Another seminal study was Ellis' research regarding information-seeking behavior patterns among academic researchers (Ellis, 1993; Ellis, Cox, & Hall, 1993; Ellis & Haugan, 1997). Ellis and colleagues interviewed participants regarding the process by which they searched for information. Analysis of the semi-structured interviews identified themes that were categorized into patterns of information seeking behavior. The subsequent model has been repeatedly studied using various other users (i.e., engineers), context (i.e., searching the web) and settings (i.e., everyday life).

More recently, Nguyen (2015) studied student and faculty interview responses toward a "participatory" library service model that actively engages students in the daily operation of their academic library (i.e., using social media for open dialogue about the library). The participants' reactions were categorized into recurring themes of "community," "empowerment," and "experience." This empirical data validated the need to further investigate this prototype as an effective service model. Finally, White (2016) used a grounded theory approach to analyze interviews with internationally recognized academic scholars about their approaches to research. From the data, White developed a model of research practice that reaches beyond the traditional definition of information seeking behaviors. The new model views the research process as a

complex phenomenon that is interrelated to the other areas of the academic landscape including teaching students and professional service.

Methodology

Project Overview

The overall project utilized a robust mixed-methods design for data collection performed at both campuses. The three data collection methods consisting of a survey, observations, and interviews, were implemented and analyzed from fall 2012 to early 2016. A complete list of the individuals who contributed to the project through data collection and analysis is included as Appendix A.. The principal investigator, the University Library Dean, had previous experience participating in ethnographic and grounded theory research and provided training to the research team through presentations, group training sessions, and the distribution of relevant books and articles. Institutional Review Board approval for the project was obtained in summer 2012. The funding for the project was provided by the Office of Academic Affairs.

This article draws on the data collected during participant interviews and applied to a grounded theory approach to developing theoretical constructs. In spring 2013 the research team conducted semi-structured in-depth interviews with 30 undergraduate and graduate students at both campuses who were randomly selected from a pool of students who completed the survey. Each interview was between 40 and 60 minutes in duration and conducted by two individuals, with one researcher acting as the interviewer and one researcher as the camera operator. The interviews served as “in situ” case studies of the broader set of activities in which library users engage when conducting their research and concentrated on the process of learning “how things happened.” The interview questions, which were consistent across interviews but randomized, are included as Appendix B. The interviews were recorded on video, and subsequently, the audio files were professionally transcribed and made available to the coding team for analysis.

Interview Coding and Analysis

At the start of the interview coding and analysis, a team of four librarians in groups of two, one representing each campus, were randomly-assigned 15 interview transcripts (n=30). Throughout the process, the librarians used grounded theory’s three phases of coding (open, axial, and selective) to iteratively analyze the interview transcripts according to emerging categories, themes, and concepts (Corbin & Strauss, 2008; Strauss & Corbin, 1998; Glaser, 1992).

Open Coding

During the open coding phase, each coder individually read the interview transcripts allocated to their group of two within the context of the questions: "What is this about?”, “Does this provide insight into students’ research and study behaviors?", “Is there something potentially important here regarding student use of the library?” Next, the coder highlighted pertinent data and made ‘code notes’ within the transcripts regarding initial interpretations without concern for how it may ultimately be used. Finally, each group of two coders compared and contrasted their open coded

transcripts in order to come to a consensus on those ideas and concepts they considered important for further analysis.

Axial Coding

At the beginning of the axial coding phase, the coding team created the first version of a thematic codebook based upon the important ideas and concepts identified during the open coding phase, as well as, a word count from the observation narratives and preliminary survey results. Using the codebook, each coder re-analyzed the interviews and assigned the themes and subthemes that applied to the interview content. Again, each group of two compared and contrasted their individually coded interviews in order to come to a consensus on the themes and subthemes relative to the interview content. Finally, both coding groups compared and contrasted six randomly selected interviews by double coding 20% of the total number of interviews (six randomly selected interviews). An interrater agreement of 85% was established between group members and between teams. Throughout the axial coding phase, the coders periodically met to organize, re-label, and add themes and subthemes to the codebook as they continued to emerge during the analysis. In the end, the codebook contained 459 unique thematic codes over six iterations.

Selective Coding

At the conclusion of the axial coding phase, there were hundreds of variables that could be exponentially analyzed. To analyze all possibilities was not feasible at the time. As a result, the coding team closely analyzed the major themes and subthemes in an effort to select major areas of focus for further analysis. These categories were graphically depicted, as shown in figure 1. As a result, the researchers were able to conceptualize the key analytic themes, as well as, portray a meaningful composite picture of these phenomena in everyday terms.

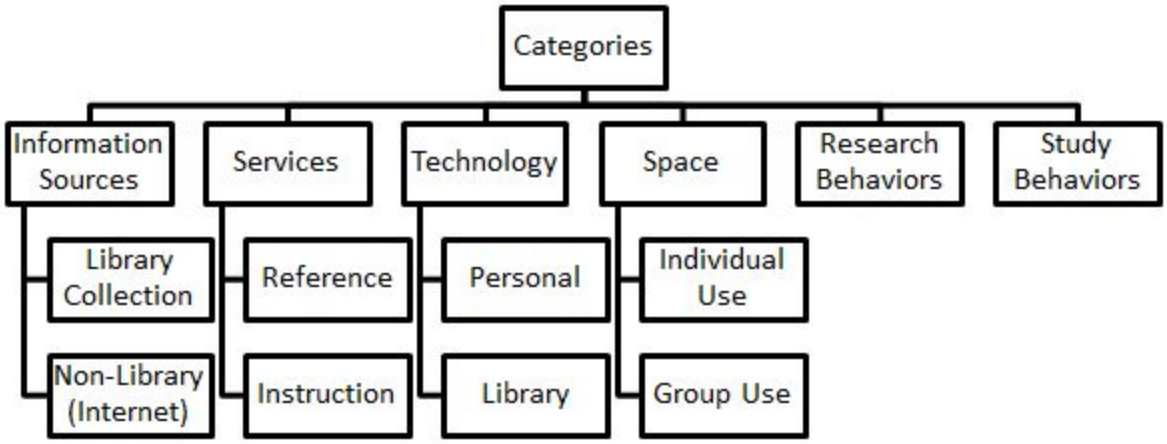

Figure 1: Major categories and subcategories

Initially the researchers defined research and study behaviors as distinctly separate phenomenon. For the purposes of the project, studying was defined as the process by which a student gains knowledge about an academic subject and may include tasks such as subject related classroom

assignments and reviewing materials in preparation for exams. Research was defined as the systematic use of specialized information sources to reach conclusions and may include tasks such as writing papers or developing presentations. As the researchers iteratively analyzed the coded interviews, a pattern regarding research and study behaviors emerged: some interviewees used knowledge learned from information literacy instruction and librarian interactions to inform them on how to study and learn academic content and vice versa. The overlapping behaviors depicted in figure 2 represent the behaviors, knowledge, and skills that students interchangeably used to perform both research and study activities.

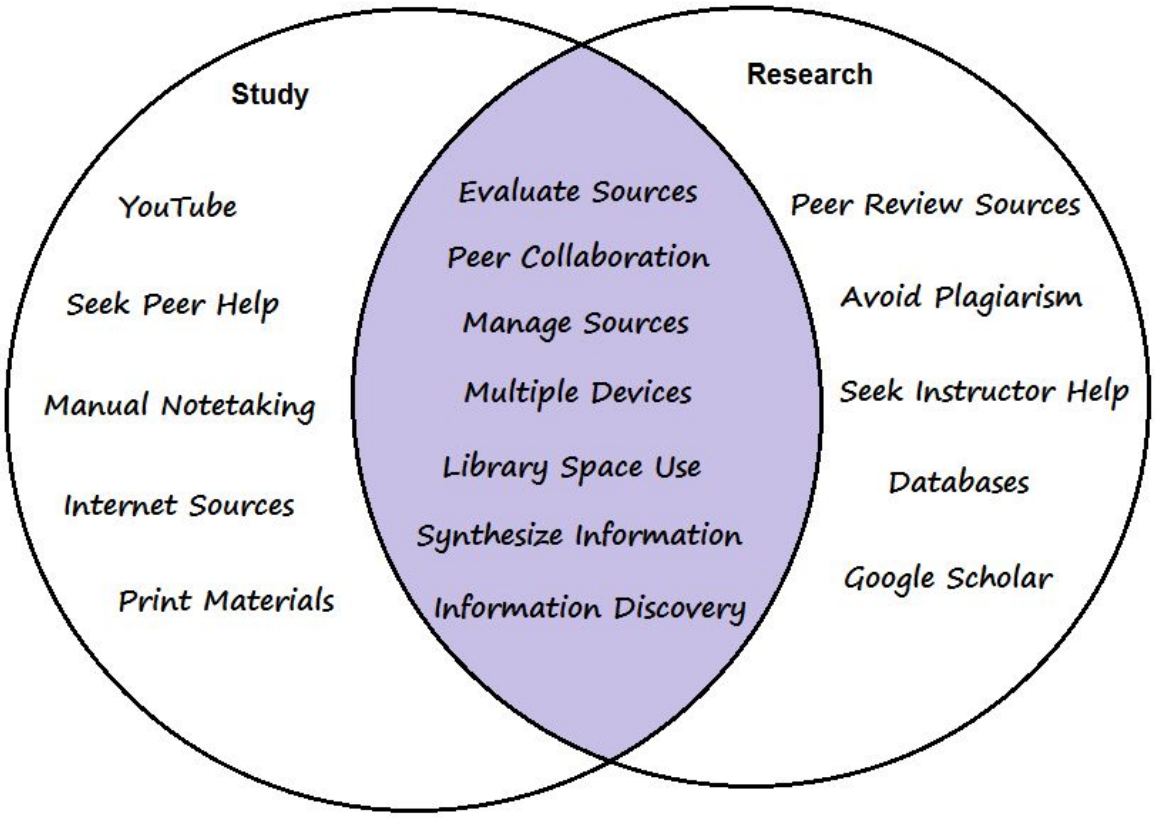

Figure 2- Construct Venn Diagram

Examples of Interchangeable Behaviors

During the interviews, some students indicated that they applied evaluation criteria learned during library instruction to inform them on how to validate resources used to study or complete classroom assignment. In one case, a physical therapy student described evaluating Youtube videos used to study for an upcoming exam: "Because obviously anybody can put anything on the Internet, I have my book here with the description of the procedure. Youtube is my visual learning. I use my textbook to verify if it's authentic". Another student describes how evaluating websites for

authority in order to learn more about a classroom topic: "..this monetary policy in China is coming from Stanford University. I would consider that a better resource."

In some cases, interviewees discussed using similar information search strategies to perform research or other academic tasks. In these cases, interviewees used Google or Wikipedia as a first step to "just see what is out there" or "for brainstorming and as a lead to other resources," before proceeding to specialized resources. When tackling class assignments, one student explains "If I don't know where to start—I'll go look at Wikipedia and see what sources they have listed." Another student adds "I just 'Google' what I don't know from class." When it came to research, one student explained, "I would usually start on Google and see what I could find there before I come to the library's website and look for actual articles." Another adds, "A lot of people might not agree that it's [Wikipedia] a good thing to use for research papers. Obviously you don't want to cite Wikipedia, but if you just look for information on a topic, I think it's a great starting point."

In a third example, many interviewees explained their multitasking approach by using multiple technologies simultaneously to effectively locate, use, and synthesize information. As one student describes a typical group study approach: "...so one person is reading one thing from a device and I'm reading something else, another is typing notes but we are discussing the same topic." Another student explains this approach while writing a research paper as "Basically I need to be able to look at things when I'm writing about them. I'll have something opened up on one device and then something else opened on another and I'll be merging the two onto the word processor on the computer."

Development of a Theoretical Construct

Academic libraries often think about information literacy instruction and services (reference support, interlibrary loan, etc) as only contributing to research skills and knowledge in the traditional sense. However, based on the patterns previously discussed the researchers realized that they are actually a reusable skill. This realization led to the development of the following theoretical construct:

Research and studying are not distinctly separate activities but often encompass mutually informative knowledge, skills, and behaviors that are likely manifested through the process of transfer of learning.

According to Jansen and Rieh (2010) theoretical constructs are the conceptual ideas "from which researchers build theories, develop models, evaluate results, and measure impact". Constructs also provide the context for researchers to organize their discoveries and focus their knowledge (Dent, 2013). While constructs themselves are intangible, they are made up of observable and often measurable behaviors (DePoy and Gitlin, 1998).

Conclusion

Ethnographic and grounded theory approaches are compatible research processes.
Construct development is critical to library science in that it serves to explain information literacy phenomenon and provide direction for future research efforts.
Academic libraries contribute to the greater academic landscape in ways not previously recognized.
The construct developed here requires further research and testing for validation.

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Appendix A: List of Study Participants

List of Participants - [Name of Campus]
[Names of participants]

List of Participants - [Name of Campus]
[Names of participants]

Coding Team Members
[Names of coding team members]

Appendix B: Sample In-Depth Interview Questions

When you study in the Library (if you do), do you prefer to be around other students, or have more of your own personal space? Can you describe why you prefer this? If you prefer to have more of your own space, where do you go to find a more private space in the Library? Do you ever have to "create" your own space? If yes, can you describe how you do this?

When you get an assignment for a class, what is the very first thing you do? Can you show me? When you study, do you have more than one electronic device in use? Do you ever listen to audio such as music, tutorials, etc. on headphones while you are studying? If you do, can you describe what you typically listen to?

Do you save or backup your work? If you do, describe how you save/backup your work – do you use a jump drive, or a service like Dropbox, or something else? Do you ever email documents to yourself to access them later? If you do, can you give me some examples?

Do you come to the Library when you are on campus? If yes, do you tend to come to the Library alone or with friends and classmates? If you come to the Library alone or as a group, what are some of your typical activities? How often do you come to the Library when you are on campus?

Do you or have you used print books from the Library for your classes (not textbooks)? Have you ever checked books out of the Library to use for your coursework? Have you used the Reserves collection (either print or electronic)?

Do you or have you used an eBook from the Library? If yes, was it for a class or some other reason? Did your professor assign it? How/where did you find the eBook? Can you show me?

Do you seek help from Library personnel? If yes, please describe. If not, when you have questions regarding your assignments or research projects, where do you turn for assistance?

Have you ever used the Libraries' website to help you with an assignment? If you did, how did you find the Libraries' website/homepage? Can you show me how you used the website and how you found your way to the things you used?

Do you access the Library from home? If you do, can you give me an example of what you did or what you were looking for? Did you ever need help when trying to connect to the Library from off-campus? How often do you access the Library's website and for how long?

Appendix C: Sample Thematic Codes from Codebook

Major Theme	Code	Subtheme	Code
Student Research Strategies	RESSTRAT	First Source Consulted	FIRSTSRC
	RESSTRAT	Search Engine Use	SEARCHENG
	RESSTRAT	Evaluating Sources	EVALSRC
	RESSTRAT	Shelf Browsing	SHELFBRW
	RESSTRAT	Catalogue Browsing	CATBRW
	RESSTRAT	Keyword Search	KEYSEARCH
	RESSTRAT	Copy and Paste as note taking	CPPSNOTE
	RESSTRAT	Textbook Acquisition	TEXTBKAQ
	RESSTRAT	Time Spent In Library	TIMEINLIB
	RESSTRAT	Downloading and Printing	DLPRINT
	RESSTRAT	Downloading and Emailing	DLEMAIL
	RESSTRAT	Use of Cloud Storage Services	CLOUDUSE
	RESSTRAT	Fulltext	FULLTEXT
	RESSTRAT	Bibliography	BIBLIOG
	RESSTRAT	Peer review/scholarly	PEERREV
	RESSTRAT	Take picture with phone	MOBILEPIC
Student Study Habits	STUDYHAB	Time Spent In Library	TIMEINLIB2
	STUDYHAB	Print	PRINT
	STUDYHAB	Saving	SAVE
	STUDYHAB	Playing Music	PLAYMUS